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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,442	07/23/2003	Shivnandan D. Kaushik	ITL.0970US (P16133)	7941

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EXAMINER

ELAMIN, ABDELMONIEM I

ART UNIT	PAPER NUMBER
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2116

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/625,442

Applicant(s)

KAUSHIK ET AL.

Examiner

A Elamin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/30/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-8, 19-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnson, US. Pat. No. 6,859,886.

3. Claims 1, 19 and 24, Johnson teaches a method comprising:

determining utilization values for a plurality of processors having power utilization dependencies [*col. 3, lines 5-11, also see Step one of Fig. 3*]; and

identifying a target frequency for the plurality of processors based on the utilization values [*see for example Steps 4, 5, 8, 9, 12 and 13 of Fig. 3*].

4. Claims 2, 20, Johnson teaches transitioning a processor package to the target frequency [*col. 3, lines 12-30*], the processor package [*embedded controller 104 of Fig. 1*] including the plurality of processors [*IOP, CTX0 and CTX1 of Fig. 1*].

5. Claim 3, obtaining parameter information for the plurality of processors [*col. 3, lines 5-11*].

6. Claim 4, Johnson teaches determining the utilization values using the parameter information [*col. 5, lines 1-7*].

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7. Claim 5, Johnson teaches the utilization values comprise an up/down decision for each of the plurality of processors [*see for example Steps 7-9 of Fig. 3*].
8. Claims 6, 21, Johnson teaches identifying the target frequency comprises identifying a frequency operating point closest to a maximum operating frequency of the processor package multiplied by a maximum utilization of one of the plurality of processors having a highest value for the maximum utilization [*see Fig. 3 and related disclosure*].
9. Claims 7, 22, Johnson teaches transitioning the processor package to a higher frequency if one of the utilization values is an up decision [*see for example Steps 4, 8 and 12 of Fig. 3*].
10. Claims 8, 23, Johnson teaches transitioning the processor package to a lower frequency if all of the utilization values are a down decision [*see Steps 5, 9 and 13 of Fig. 3*].

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 9-18, 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson, US. Pat. No. 6,859,886.
13. Claims 9, 11 and 25, Johnson fails to teach a plurality of logical processors.

Official Notice is taken that both the concept and the advantages of logical processors is old and well known in the art.

14. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Johnson to include a plurality of logical processors, because of the fact that two or more logical processors may exist on one physical processor.

15. Claims 10, Johnson fails to teach the plurality of processors comprise at least one multicore processor.

Official Notice is taken that both the concept and the advantages of multicore processors is old and well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Johnson to include multicore processors, because, in multicore processors, each of the main cores provides computing power that equals or exceeds that of a conventional high-performance single core processor.}

16. Claim 12, Johnson teaches transitioning the physical processor to the target frequency [*col. 3, lines 12-30*].

17. Claim 13, 27, Johnson teaches transitioning the physical processor to a higher frequency if any of the logical processors has an up utilization decision [*see for example Steps 4, 8 and 12 of Fig. 3*].

18. Claim 14, Johnson teaches the higher frequency is based on a highest utilization processor of the logical processors [*see Fig. 3 and related disclosure*].

19. Claim 15, Johnson teaches transitioning the physical processor to a lower frequency if all of the logical processors have a down utilization decision [*see Steps 5, 9 and 13 of Fig. 3*].

20. Claim 16, Johnson teaches the lower frequency is based on a highest utilization processor of the logical processors [*see for example Steps 4, 8 and 12 of Fig. 3*].

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21. Claim 17, Johnson teaches transitioning the physical processor comprises transitioning to a higher frequency if any of the logical processors needs additional compute power [*Steps 15-19 of Fig. 3*].
22. Claim 18, Johnson teaches wherein calculating the target frequency is based on desired power and performance characteristics [*abstract*].
23. Claim 26, Johnson teaches identify a frequency operating point closest to a maximum operating frequency of the processor package multiplied by a maximum utilization of one of the plurality of logical processors having a highest value for the maximum utilization [*see Fig. 3 and related disclosure*].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A Elamin whose telephone number is (571) 272-3674. The examiner can normally be reached on MON-FRI 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on (571) 272-3670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



A Elamin

Primary Examiner

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September 29, 2005